

REMARKS

Claims 1-45 are presently active in this case. Claims 38-45 are new.

In the outstanding Office Action, Claims 1-4, 6-9, 13, 17-23, 28-31, 36, and 37 were rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,221,893 to Kondou et al. Claims 5, 10-12, 14-16, 24-27, and 32-35 were objected to as being dependent upon a rejected base claim, but were indicated as being allowable if rewritten in independent form.

Applicants acknowledge with appreciation the indication that the above-noted claims would be allowable if rewritten in independent form. However, since Applicants believe themselves entitled to the scope of protection stated in Claims 1, 2, 19 and 36, the above-noted dependent claims have presently been maintained in dependent form.

Applicants further acknowledge with appreciation the courtesy of an interview granted to Applicants' attorney on June 10, 2003 at which time the outstanding issues were discussed. The Examiner indicated during the interview that he would reconsider Applicants' argument that the Kondou patent does not disclose or suggest the step of formulating corrosion loss as a function of a plurality of environmental assessment points. The Examiner indicated that he would reconsider that argument. However, no agreement was reached.

Claims 4-5, 11-18, 20, 24, 28, 31-35, and 37 have been amended to remove improper claim dependencies.

Briefly recapitulating, the present invention (Claim 1) is directed to a deterioration diagnosis method for diagnosing the amount of corrosion weight loss of metal non-destructively, the deterioration, and remaining life of electrical equipment in which such a metal is used as a structural material. To that end, the method includes the steps of formulating a corrosion loss of a metallic material to exposure days under an atmospheric

condition as a function of environmental assessment points which represent a level of harmfulness of the atmospheric condition; and diagnosing a life span of the metallic material based upon the corrosion loss calculated by the function. By way of non-limiting examples, the environmental factors which are measured include temperature, humidity, corrosive gases and sea salt particles. As illustrated in Figure 2, each environmental factor is classified and determination of environmental assessment points is performed for each environmental factor. The bases for classification and assessment points are the measured values of each environmental factor of several hundred different locations in the Japanese homeland and the results of investigating the corrosion of metallic materials exposed in those environments. Environmental assessment points that take into consideration all the environmental factors of atmospheric environments can be found by finding and totaling the assessment points for each separate environmental factor of those environments, and the corrosivity of the atmospheric environments can be objectively judged by the numerical values of the environmental assessment points.

As a result, it is possible to diagnose with good accuracy the corrosivity of metallic materials.¹ Further, the synergism (multiplier action) to the metal corrosion is quantified by the environmental assessment points by summing up the assessment points. By simply measuring the atmospheric conditions, an inference of the amount of corrosion of the metal employed therein and diagnosis of the deterioration of the equipment and its remaining life can be performed non-destructively.

¹ Specification, page 27, line 10 to page 28, line 16.

Likewise, the present invention (Claim 2) formulates a corrosion speed as a function of environmental assessment points and diagnoses a life span of the metallic material based on that function.

The present invention is also directed to deterioration diagnosis equipment. Claim 19 defines, among other things, a first database for storing a function giving a relationship to an amount of each environmental factor and assessment points for each factor, a second database for storing functions giving relationships between environmental assessment points and assessment points for each factor for each type of metallic material, and an environmental assessment points calculation unit for calculating environmental assessment points.

Likewise, the present invention (Claim 36) provides a deterioration diagnosis equipment including a contamination level measurement unit, a deterioration index database, and a deterioration index calculation unit.

The Office Action asserts that the Kondou et al patent anticipates the subject matter defined by claims 1-4, 6-9, 13, 17-23, 28-31, 36, and 37. Applicants respectfully traverse that assertion. Applicants respectfully point out that the object of the Kondou et al patent is to diagnose the deterioration of a coating and its remaining life by measuring the impedance of the coating. In order to accomplish this objective, the Kondou et al patent teaches that the impedance of the coating is found by applying a voltage to the surface of a coating film and a metallic underlayer and measuring the current.

Applicants respectfully point out that it is clear that the Kondou et al patent fails to teach or suggest either the step of diagnosing a life span of the metallic material based upon corrosion loss (speed) using a function of environmental assessment points or formulating a corrosion loss of a metallic material as a function of environmental assessment points.. Thus, Kondou et al are not believed to anticipate or render obvious the claimed invention.

Regarding Claims 19 and 36, Applicants respectfully point out that the Office Action fails to address any of the features of those to apparatus claims. Hence, the rejection of Claims 19, 36 and their respective dependents is hereby traversed.

Consequently, in view of the present amendment, no further issues are believed to be outstanding in the present application, and the present application is believed to be in condition for formal allowance. An early and favorable action is therefore respectfully requested.

Respectfully submitted,

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